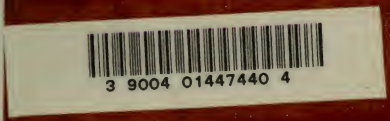

(4.)

REPORT

ON THE

ST. LAWRENCE & ATLANTIC RAIL-ROAD,

ITS INFLUENCE ON THE

TRADE OF THE ST. LAWRENCE,

And Statistics of the Cost and Traffic of the

NEW YORK AND MASSACHUSETTS RAIL-ROADS,

BY A. C. MORTON,
CIVIL ENGINEER.

Laid before the Legislative Assembly, 7th April, 1849.

MONTREAL.
PRINTED AT THE CANADA GAZETTE OFFICE.

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ST. LAWRENCE & ATLANTIC RAIL-ROAD,

&c. &c.

MONTREAL, 10TH MARCH, 1849.

HON. A. N. MORIN,
President of the St. Lawrence and Atlantic Rail-Road Company.

SIR,

As the Corporation over which you preside is an applicant for Government aid, upon which, in the absence of other means, you must mainly depend for the further extension of your road, it is regarded of much importance that all information tending to establish its character as an enterprize worthy the confidence of capitalists, and well deserving the favorable consideration of the Government, should be laid before the public.

My connection with the work led me, at an early date, to an investigation of its merits and its claims upon the public for support; and in the hope that I may contribute some useful information in addition to that published in the valuable Reports of the Company, I beg leave to submit some general observations relative to the commencement and progress of the enterprize—its present state—its connection with other works, and the probable revenue that will be derived from its business.

ACT OF INCORPORATION, &c.

The Act incorporating the St. Lawrence and Atlantic Rail-Road Company was passed March, 1845, which authorizes the construction of "a Rail-road from the River St. Lawrence, as nearly opposite the City of Montreal as may be found desirable in the general direction of St. Hyacinthe and Sherbrooke, to the Boundary Line between this Province and the United States of America, at such point or place of the said boundary line near the Connecticut River as that the said Rail-Road may best connect with the Atlantic

and St. Lawrence Rail-Road to be constructed from Portland in the State of Maine, to the said Boundary Line, there to connect with the said Rail-Road hereby authorized to be made and completed;" and it further authorizes the construction of two branches to the main line, to wit: one located on the south side of the St. Lawrence to a point opposite the City of Quebec, and the other to the Boundary Line in the Township of Stanstead, or elsewhere in the County of Stanstead, with a view to uniting the same with any Rail-Road which may be constructed in Vermont.

The Charter as a whole may be regarded as comprehensive and liberal in all its provisions, affording inducements for advantageous investments by capitalists, while at the same time the rights and privileges of the public are fully guarded and protected.

As the Act contemplates that your Road shall connect with a Road to be constructed from the Boundary Line to Portland, the two forming one continuous line to the Seaboard, it is proper to remark that the Legislature of the State of Maine also, during their Session of 1845, had previously passed an Act similar in its provisions with your Act, incorporating a Company under the title of the "Atlantic and St. Lawrence Rail-Road Company," for the purpose of constructing a Rail-Road from Portland to the Boundary Line, there to connect with your Road. By the two Acts, the entire line between the St. Lawrence and the Seaboard is placed under the control of only two Corporations.

Under these Acts the requisite stock was subscribed—the two Corporations organized—and the explorations, surveys and locations commenced nearly simultaneously at both ends of the line.

Early explorations on the part of the American Corporation indicated that there were three feasible routes approaching the Boundary, and that these in part would pass through portions of the States of New Hampshire and Vermont. It therefore became necessary that that Corporation should obtain a recognition of its Charter from those States.

The Board accordingly made application to the constituted authorities of these States, and Acts were passed by the Legislatures of

both, constituting the Atlantic and St. Lawrence Rail-Road Company a Corporation within their respective limits, clothing it with all necessary authority, and giving the control of the whole line from the Atlantic to the Boundary to one and the same Board of Directors.

A Committee of Directors from both Corporations, duly authorized, met in the spring of 1846, and entered into an agreement on the part of their respective companies, subsequently adopted and ratified by these companies, with reference to the execution of the surveys, the determination of the point of junction of the two Roads, and uniformity in the general plans of construction.

This agreement also provides, that when the two Roads are completed and open to the public "Rules and Regulations for conducting the business of the Road shall be adopted, predicated upon the broadest and most enlarged principles of mutual convenience and accommodation, and with a view to advance the joint and reciprocal interests as well of the contracting parties as of the public."

I have deemed it proper to allude to these preliminary measures in order that the public may be aware that the Legislatures of the Province, and the several States through which the Road is to pass, have, in granting these liberal Charters and Privileges, taken a most enlightened and comprehensive view of the importance of this great line—that the friends of the enterprize early availed themselves of these privileges, and manifested their confidence in the undertaking by subscribing liberally to the stock—and that immediately after the organization of the two Companies, the Directors of each proceeded forthwith to a mutual understanding and agreement, regulating the surveys, the construction and management of the roads in such manner as to render them identical in interest and virtually but one Road.

SURVEYS AND CHARACTERISTICS OF THE ROUTE.

In the spring of 1846, the Engineer Department of the Company was organized, and the surveys commenced and continued through the season.

Extensive explorations were made to determine the route generally between the St. Lawrence and the St. Francis Rivers, which resulted in the adoption of the most northerly route passing through the village of St. Hyacinthe and the Townships of Upton, Acton and Durham, and reaching the St. Francis Valley in the Township of Melbourne.

This being determined, the location of the Montreal Division extending to St. Hyacinthe was commenced, and in the fall of 1846 completed, and the work placed under contract.

During the same time, an approximate location of the road was made through the St. Francis Valley, and also a preliminary survey of one of the main routes crossing the highlands, between the waters of the St. Francis and Connecticut Rivers.

The results of these explorations and surveys were the determination of the route for the road for a distance of 100 miles—an instrumental survey of the whole line from the St. Lawrence to the Boundary, and the final location of 30 miles of road.

These Surveys indicated that the route generally was of an unusually favorable character, and that the more irregular and broken grounds to be passed over by the road were confined to a comparatively short distance of 25 to 30 miles near to or approaching the Boundary—there, from the conformation of the face of the country, a variety of routes were suggested.

In the Spring of 1847, the Surveys were resumed and continued through the season, several subordinate routes and trial lines were surveyed between the Yamaska and St. Francis Valleys, and another route surveyed to the Boundary Line.

The grading for the first 30 miles was also pressed forward, and contracts entered into for track timber and other materials.

During the season of 1848, the final location of the road was made to a point in the vicinity of Lennoxville, a distance of about 100 miles from the St. Lawrence river. A third Survey was also made to the Boundary Line.

The results of the Surveys of this last year are in a high degree gratifying to the friends of the enterprize.

The total distance from the St. Lawrence river to the seaboard, by the new route surveyed on each side of the Boundary, is about 5 miles less than any other route previously surveyed. This reduction saves in distance to your road 4.67 miles, with more favorable gradients, and an improvement in its general direction.

Gratifying as these results may appear, there is still a reasonable probability of a further reduction of the distance on the part of the American Corporation.

The length of your road by the last Survey will be 126 $\frac{81}{100}$ miles, the maximum gradients 50 feet per mile. Nearly 80 per cent of the whole road will be level, or of inclinations not exceeding 35 feet per mile.

There will be comparatively but a small amount of curvature, and probably 80 or 90 per cent of the whole road will be straight, or of such moderate curvature as to be nearly equivalent to a straight line.

During the last season the work on the first Division, extending to St. Hyacinthe, was vigorously pressed forward, and the road completed and opened for business to that place on the 27th of December last.

COST OF ROAD.

This is a subject about which there may be differences of opinion. The history of many of the public works of the country show that estimates of cost have often fallen far short of the final cost of the work when completed.

Hence, in presenting estimates of a great work, much caution should be observed, and if practicable, they should be based on the actual cost of works of a similar character already completed.

The estimated cost of the Montreal Division, extending to Acton, 45 miles, made December, 1846, amounts to the sum of £274,000, giving an average of £6088 per mile for the whole distance.

In the last Annual Report of the Company, the cost of that part of the Division extending to St. Hyacinthe, now in operation, is stated at £6,192 per mile. This includes a liberal allowance for ballasting the track, and also an additional Locomotive Engine, &c. amounting to £26,902, equal to £896 per mile.

There are certain deductions made from the cost of this part of the Division by the Directors, for items properly chargeable to the whole road, and in determining the amount of these sums the Board has wisely taken a low sum.

The original estimates were made for a single track, but in the progress of the work it was deemed important to provide for a second track at particular points, such as the Richelieu river bridge for instance, where the masonry is of sufficient dimensions for a double track. This course was adopted for the reason that additions could not well be made to the masonry hereafter for a second track, except at a much greater additional cost, and with great difficulty in obtaining secure foundations.

It must be also recollected that on this portion of the road has been erected the expensive and difficult work, the Richelieu river bridge, which cost £22,000, while on the remaining 15 miles embraced in the estimate there are no such expensive structures.

Notwithstanding these important considerations, the cost of this part of the Division per mile, as stated by the Directors, is very nearly the same as the average of the original estimate per mile for the whole 45 miles.

While the remaining 15 miles will cost less per mile than the first 30, on an average, and the final cost of the whole 45 miles if constructed in the manner contemplated, will not exceed the original estimate.

I have deemed it proper to make these remarks in explanation of the actual cost of the work thus far, in comparison with the original estimates, in order that the public may judge what degree of confidence may be attached to the originally estimated cost of the whole road.

The total estimated cost of the whole road, determined approximately from the first preliminary line run through to the Boundary, is £850,000 currency.

And although by changes in routes and plan of construction this amount may be somewhat varied, yet it is believed that with judicious and careful management it is sufficiently liberal to construct the road in a substantial manner and cover all ordinary contingencies.

CONNECTIONS OF THE ROAD AND ITS SOURCES OF TRADE.

If we take a survey of that unrivalled line of inland navigation, extending from Montreal to the far West, and examine its character and position, we shall at once see the importance of the connections which your road forms, the superior advantages of its location, and the bearing it has on the commercial interests of the Province.

The navigation of the St. Lawrence from tide water to the great Lakes is now perfected by the completion of a magnificent series of ship canals, and vessels carrying three thousand barrels of flour, may receive their cargoes at Chicago, or any of the Western ports, pass expeditiously and safely to tide waters, and thence to the Ocean, without breaking bulk.

The principal objection urged against this route as a great thoroughfare, is the difficulties arising from the severity of the climate which renders the season of navigation short and at times unsafe. At certain of these periods, there is little or no competition and freights, and insurance are high.

Under these circumstances, all that is necessary to give the St. Lawrence route the superiority in every respect, is a short, cheap, and expeditious communication between Montreal and the Seaboard.

This, it is maintained, will be accomplished in an eminent degree by the completion of the Portland Rail-way, which, from its favorable position, reaches the Atlantic Coast by the shortest feasible

route, with gradients and curvatures equal or superior to most of the great leading lines which are striving for the Western trade.

The first and most important connection of your road, therefore, is with the extended natural and artificial navigation opening to the vast and fertile regions of the West, and securing to it in a great degree the immense trade which will descend through the St. Lawrence to an Eastern market.

From the St. Lawrence, your road pursues an easterly course until it reaches the St. Francis Valley, where an important line or branch rail-way will diverge passing down the valley of the St. Lawrence to Quebec. This will concentrate and draw the trade to your main line, whether it is designed for an Eastern or Western market, or to or from Quebec.

Thus, your main line, while it accommodates and will secure the local trade of the Country, and that between the cities of Montreal and Quebec, will still be the great thoroughfare between both cities and the Atlantic Seaboard.

This will inevitably be the result, simply because it is the shortest and cheapest channel through which this trade can flow for a large portion, if not the whole year.

But in addition to these considerations as connected with the trade of the Quebec branch, there is still another advantage which greatly enhances its value.

When the great system of rail-ways for the Province shall have been carried out, this branch and a large portion of your main line will then form part of the grand trunk line from Halifax to Lake Huron.

After attaining this important point of divergence on the St. Francis, your road bears a more southerly course, following the fertile valley of this stream for a distance of 30 miles, when it arrives at the point of divergence of another important and long line of Rail-way communication extending to the cities of New York and Boston, and all the principal manufacturing towns of New England.

The construction of 100 miles on the part of American Corporations will complete an uninterrupted line to both of these cities, which probably will be done as soon as your line is constructed to the boundary.

But without at present further tracing these connections and the benefits flowing therefrom, we return to the main line, which from this point to the boundary is but a continuation of the same general course, followed through the St. Francis Valley.

Arriving at the boundary, your line is taken up by the American Corporation and extended to Connecticut river, thence down its valley to the vicinity of Guildhall, Vermont and Lancaster, New Hampshire, when it will connect with the proposed Rail-road passing down through Meredith and Concord to Boston, and affording another line of communication with central New Hampshire and that city. From the point of divergence near Lancaster, the main line in continuation of your road is extended to tide waters, Portland Harbour, forming in its course several important connections, not only with branches contemplated and in progress, but with main trunk lines extending eastward.

One of these lines may be regarded as an extension of your road through the heart of the State of Maine to the Province of New Brunswick. It diverges from the Atlantic and St. Lawrence Railway 27 miles from Portland, and extending through a rich and populous district, reaches Waterville, a flourishing town on the Kennebec River, in a distance of about 55 miles.

A portion of this line is already in operation, and the whole road is expected to be completed and opened for business to Waterville next autumn.

From that place to the city of Bangor the road will be constructed by another corporation, and as there is a favorable Charter it will no doubt soon be commenced.

Bangor is a flourishing City situated at the head of Ship Navigation, on the Penobscot River, which, with its other advantages, renders it an important point on the Great Eastern line of Rail-ways.

It is hardly necessary for me here to observe that this eastern line has been commenced on the same gauge as your road, which gives to it the same superiority and advantages over the ordinary gauge, which is claimed and, I believe, generally conceded to that of your line.

The field in this direction is unoccupied, and every consideration favors the supposition that this gauge will prevail to the eastwards, not only in the State of Maine, but in the Lower Provinces.

Regarding the construction of this line through the central part of the State of Maine to Bangor, and its early extension to the Province of New Brunswick, as settled, a vast field for commerce and manufactures is opened, which in its bearings on the trade of your road is second only in importance to the great object of the main line in reaching the nearest Atlantic Port.

In reference to the connection with other channels of communication at the Atlantic terminus of your road, it is hardly necessary to do more than to refer to a map of the country, herewith submitted, when its advantages will be quite apparent.

I will only observe that in addition to the facilities of Navigation from Portland Harbor to all the Atlantic Cities, to Nova Scotia and New Brunswick, and to the interior of the Country by Rivers, there are now Rail-ways both east and west from the same point.

Two lines are in progress of construction eastward, one of which is in partial operation, and westward to Boston, the Rail-way communication is complete, there being at present two roads for a large portion of the distance, and before your road is completed there will probably be two independent lines the whole distance.

From Portland, therefore, there is a direct Rail-way communication with all the New England States and the State of New York.

It will be observed that, as it regards the shipments of every description of freight to any port in the West Indies, the United States or Europe, the Harbor of Portland for the whole year enjoys equal or superior advantages for your trade to any port on the New England coast.

Neither is there room to doubt that if it is desired to forward Merchandize direct from Montreal to the wharves of Boston, that it may be transported on your road to Portland, thence to its place of destination by steam or other vessels, at less cost than by any other line of Rail-way between the same points.

From Portland to Boston there will always be strong competition between Rail-roads and Steamboats, and also between steam and other vessels, both summer and winter, which will for all time to come keep the rates of freight and passage low.

The result of this competition, during the past season, reduced the regular fare on through passengers on Rail-roads between these points, 33⅓ per cent.

Further, the fare on the Rail-roads, for express trains, was as low as Seven shillings and six pence, currency, for 105 miles, while the fare by Steamboats was as low as one Shilling and three pence between Portland and Boston.

But the great superiority of this terminus for your road on the Atlantic consists in the excellence and capacity of the seaport at which you arrive, its easy access, and its favorable position for shipments to Europe.

To these natural advantages are added those of a favorable location of the terminus, which secures to the road nearly half a mile of wharf devoted exclusively to the business of the road, along the whole extent of which vessels may discharge their cargoes and receive return freights direct from the cars.

I have now glanced at the leading features of your road, and its connections with other great channels of trade, most of which are in successful operation, or far advanced towards completion.

These are connections which, for capacity and extent of traffic, are equal to those of any road on the continent, and upon this traffic with your local trade must we base our estimate of the value of its stock and its claims on the public for aid for its completion.

With reference to the character of the country along the line of your road, its resources and soil, I will observe that it passes through an interesting portion of Canada, embracing the Seigniories of Longueuil, Montarville, Chambly, Belœil, Rouville, St. Charles and St. Hyacinthe, all of which are in a high state of cultivation, and thickly populated.

Thence, after reaching the St. Francis Valley, the country is in an advanced state of cultivation, with an enterprising population, to the boundary, a distance of about 70 miles. Crossing the boundary, in its continuation to the Ocean, the road descends into the Connecticut Valley, the garden of New England, which it follows for a number of miles, thence, crossing to the Valley of the Androscoggin, which is scarcely inferior to the Connecticut in fertility and cultivation, which, with its tributaries, it follows nearly the whole distance to the Seaboard.

Located as the road is, nearly its whole extent through the Valleys of large streams, it passes by, and in the vicinity of water power of unlimited extent, which at many points is already improved and rapidly advancing in importance.

The country, for the whole extent, abounds with the elements of business and wealth, which on the opening of this new channel of trade will be fully developed.

In considering the question of the traffic of your road, we must have reference to not only the number of inhabitants immediately along the line, who make up its way business, but embrace the population of large districts of country, which, owing to their position, will be furnished with their supplies and a choice of markets for their productions, through your road, at less cost than by any other means of communication.

Your road having its terminus at an Atlantic port, and forming one of the great outlets of the western trade, may justly claim a large traffic from breadstuffs to be exported to Europe, South America and the West Indies, and from imports of Merchandize, &c., for Canada and the Western States.

The great sources of wealth of the New England States are Commerce, Manufactures, and the Fisheries.

The soil is better adapted to grazing and the growing of some of the coarser agricultural products, consequently they do not produce sufficient breadstuff for their own consumption.

The State of Maine, with which the trade of your road is more intimately connected, possesses unlimited advantages for Manufacturing which are now about to be brought into extensive use.

Her large Rivers, and numerous Harbors, give great value to her Navigation and Fisheries, and facilitate those valuable branches of her trade, lumbering and ship-building, in which she exceeds any other State in the Union.

The lumber which she annually produces amounts to 650 millions of feet, and the tonnage of the vessels which she annually puts afloat amounts to 28 per cent of the whole tonnage of vessels built by all the States in the Union, and exceeds that of New York by 21000 tons. In the amount of tonnage of her shipping she is the third State in the Union.

It is ascertained from undoubted authority that the State of Maine now draws annually from the Cities of Boston, New York and other places, 500,000 barrels of Flour, over 1,000,000 bushels of Indian Corn, and 75,000 barrels of Pork.

The State of Maine is largely engaged in the West India and South America trade, supplying those markets with her Lumber, Fish, &c.

Western produce arriving at tide water through this channel would give employment to a large amount of Shipping, and by adding breadstuffs to her other exports, would render this trade still more valuable, and probably open other and more extensive markets for these products.

It would also enable traders to import West India products on more favorable terms, as the Northern and Western markets for

these articles would be extended by this new channel of trade, and vessels would probably have full freights in both directions.

These products delivered at Portland Harbour would find their way to the west over your road, and through the St. Lawrence, at probably less expense than by any other communication through New England.

The soil and productions of the Provinces of New Brunswick and Nova Scotia are similar to those of the State of Maine, and they import their supplies of breadstuffs from the United States.

It is stated in the able Report of the Commissioner of the Halifax Rail-way, that New Brunswick annually pays to the United States upwards of £200,000 for provisions and other articles—that Nova Scotia does very nearly the same thing—that Flour is imported from New Orleans—and Wheat grown in the Mississipi Valley is shipped at St. Louis for New Brunswick, and ground into Flour at the Mills of St. John.

Looking at the favorable position of your road, connecting the Atlantic with the Western waters by the shortest practicable route, and extending down into the heart of the country requiring their breadstuffs, there does not appear to be any doubt that a very large portion of the supplies of the State of Maine, New Brunswick and Nova Scotia, and parts of Vermont and New Hampshire, will be transported over your road, and its branches, by which it will be delivered almost at the doors of the consumers.

The number of inhabitants within the States and Provinces above mentioned, who will receive their breadstuffs through this channel, and will otherwise contribute to its freight and passenger business, may be, at the lowest estimate, be placed at 800,000 souls.

The number of inhabitants in the vicinity of the road and its terminus in Canada is at the present time probably not less than 160,000, and the total population in parts of Upper and Lower Canada, who will be benefitted by the road and will contribute to its business, amounts to 700,000 souls, making a total of one and a

half millions of inhabitants who are directly or indirectly interested more or less in the construction of your road, and from whom you may expect business for its support.

It is believed that, without reference to any supposed increase of the Western trade, your road, with so large a population for its support, would be a good dividend paying road.

It will be found interesting and useful to refer to the practical working of the Rail-ways of the United States, and particularly those of Massachusetts directly illustrative of this subject. I have accordingly prepared Tabular Statements of a number of roads (See Appendix Note A and B) showing the cost of construction, and of operating, the tons of freight, and number of passengers transported, and the receipts for 1847.

By Statement A, it will be seen that the thirteen roads embraced in the table have an aggregate length of 581½ miles, and have cost £7,721,423—that the total income was £1,295,475,—and the expenses of running and maintaining these roads were £661,317, which being deducted from the receipts, leaves a net annual revenue of £634,104, equal to $8\frac{2}{10}$ per cent on the whole cost.

The expense of running, &c. was 50 per cent of the receipts. There were transported over these roads 5,336,988 passengers, and 1,724,888 tons of Merchandize.

The number of inhabitants in the whole State of Massachusetts, and the Counties of the other States through which those roads pass, amount to about one million.

It therefore appears that the number of passengers transported on these roads is over five times the population of the country in which they are located, and that the amount of Merchandize transported is about $1\frac{3}{4}$ tons to each inhabitant.

The large amount of travel and tonnage compared with the population is extraordinary, and must be attributed to the effects of Rail-roads in stimulating every branch of industry, and promoting greater intercourse among the masses of the people.

These results appear more surprising, when it is recollected that those roads are chiefly confined to the limits of one small State, or an area of less than 8000 square miles, and that many of them run nearly parrallel, and some are in direct competition with each other.

On account of the different state of the country and its improvements, and the different character and pursuits of a portion of the inhabitants, we should not be warranted in applying this proportion of passengers to the population along your road as a basis of revenue, but if instead of taking five times the population, which is the practical result in Massachusetts, we assume that the number of passengers will be only equal to the actual population, and assuming the amount of freight to be $\frac{1}{2}$ of a ton to each inhabitant in place of $1\frac{3}{4}$ tons, as shewn by the operation of those roads, it would appear a safe estimate of the business of your road, without reference to the great and increasing trade of the west.

Making a proper classification of the number assumed (16,000) and dividing them into "through" and "way" passengers in such proportion as the character of the business on your road appears to require, and applying the ordinary rates of transportation, we have as the annual gross receipts, for freight and passengers £115,000
Deduct for expenses of running management, &c.—say
50 per cent---------- 57,500

Giving a net revenue of---------- 57,500
Which is equal to about 7 per cent on----------£850,000
the estimated cost of the road.

The Western Rail-road is the only one embraced in the table before referred to, having a connection with other improvements, by which it receives the benefit of western trade.

It more nearly than any other resembles your road as regards its length, connections and design, forming with the Boston and Worcester road the last of the series of rail-ways extending from Buffalo to the Atlantic, connecting also with the Erie Canal at Albany. It however differs from it in the larger amount of curvatures and heavier grades, the maximum inclination being 83 feet per mile.

It has to contend with strong competition with another rail-road, and with the Hudson river during the season of navigation, yet, notwithstanding these disadvantages, and its extravagant cost, the net revenue in 1847 amounted to 8 per cent on £2,192,000, its present cost.

The gross receipts, the first year, after the whole line was opened, and before its connections were perfected, were £919 per mile of road, which, if applied to your road, the length of which is 127 miles, would produce £116,713, or deducting 50 per cent for expenses, a net revenue of £58,356, which is nearly 7 per cent on the estimated cost.

It is however maintained that the position and connections of your road, as a channel through which the western trade may reach the Seaboard, are far superior to this.

The St. Lawrence river, with its Ship Canals, and the great Lakes, open an inland navigation, which, for its extent, capacity, and economy, of transportation, is not surpassed by any in the world.

The total distance through the St. Lawrence and the lakes to Chicago, from Montreal, is 1330 miles, and in this distance there are but 66 miles of canal navigation.

If we include the navigation of Lake Superior, and Strait St. Mary's which require but about one mile of canal to perfect the navigation, and which will soon be completed, we have a total extent, including the distance laterally to Chicago, of 1726 miles, having only 67 miles of canal navigation.

The Welland canal is designed for vessels of 400 tons, and the St. Lawrence canals for vessels of much larger tonnage.

These improvements are completed, and were first brought into use last year.

This channel of trade, therefore, is not yet fully known or appreciated, and there has not yet been time to realize the benefits

which will result from experience and improvements in the manner of conducting the business of transportation and the effects of competition in lowering rates.

The amount of up trade has an important bearing on the cost of down freight; and this being largely increased by the completion of your road, will doubtless still further reduce the rates of transportation.

The following Table exhibits the leading features of the route from Cleveland to Boston *via* the Erie Canal and Western Rail-road and the St. Lawrence route, from the same point *via* the Portland railway to Portland.

ROUTES.	Length of Lake and River navigation—miles.	Length of Canal navigation—miles.	Tonnage of Vessels. tons.	Number of Transhipments.	Length of Rail-way. miles.	Maximum grade. Ft. per mile.	Time occupied in reaching Seaboard—days.
To Boston, *via* Erie Canal and Western Rail-road.....	200	363	80*	2	200	83	14
To Portland, *via* St. Lawrence River and Portland Rail-way....	534	66	400	1	275	50	8½
Difference.....	334	297	320	1	75	33	5½

* Taking one of the heaviest laden boats per day, which arrived at West Troy from Black Rock, the average for the year 1848 was 71½ tons. Canal Commissioners' Report, January, 1849.

The following Statement exhibits the cost of transporting flour per barrel, on these routes.

ERIE CANAL ROUTE.

From Cleveland to Buffalo	12 cents.
" Buffalo to Albany	70 "
" Albany to Boston	30 "
Total to Boston	112 cents.
If carried thence to Portland	10 cents.
Total to Portland	122 cents.

ST. LAWRENCE ROUTE.

From Cleveland to Montreal	40 cents.
" Montreal to Portland	45 "
Total to Portland	85 cents.
If carried thence to Boston	10 "
Total to Boston	95 "

From this, it appears that adopting the average rates of transportation on the Erie Canal of the lowest month in each year, for a number of years, which is 7 cents per barrel less than the average of 1847, and the lowest summer rates on the Western Rail-road, the cost of delivering flour at Boston is 112 cents per barrel, and if forwarded to the State of Maine, an addition of ten cents, making a total of 122 cents per barrel.

By the St. Lawrence route the cost of delivering a barrel of flour, allowing the charge on the Portland Rail-Road to be 45 cents per barrel, and taking the actual rate at which it has been carried from Cleveland to Montreal (40 cents), we have a total charge of 85 cents, making a difference in favor of the route *via* the Montreal and Portland road, to the Seaboard, of 27 cents per barrel.

If however, we make the charge on the Portland road, without reference to the difference in grades, the same in proportion to its

length, as is charged on the Western Rail-Road, the cost will be reduced to about 41 cents, or a total from Cleveland to Portland of 81 cents, giving a difference of 31 cents per barrel in favor of the St. Lawrence route.

Making Boston the terminus of both routes, there is still a difference of 17 cents per barrel in favor of the St. Lawrence route *via* Portland to Boston.

The difference in time required to perform a passage from Cleveland to the Seaboard is 5 ½ days in favor of the St. Lawrence and Portland route.

The greater extent of Canal navigation, and an additional transhipment, add not only to the time required, but materially increase the cost of transportation on the Erie Canal route over that of the St. Lawrence.

The former has 363 miles of Canal navigation, while the latter has only 66 miles, and most vessels navigating the St. Lawrence pass down the River instead of the Canals, so that in the downward passage there are but about 36 miles of Canal navigation.

The Erie Canal is navigated by vessels of small tonnage, drawn by horses at the rate of 2 ½ miles per hour, while the Welland and St. Lawrence Canals are navigated by Steam vessels which pass through the Lakes and the River to Montreal, without breaking bulk, in half the time, and with about four times the number of tons in each cargo. The vessels on the former route can carry from 700 to 800 barrels of flour, but those of the latter carry 3000 barrels.

These disadvantages of the Erie Canal route cannot be overcome by the enlargement of the Canal or other improvements.

It may be said that the Oswego route to Albany is preferable as it regards cost and the time required to make the trip. Grant that this is the case; the difference is not enough to affect the comparison materially.

The distance is about the same, and there are still 237 miles of Canal navigation, an increased amount of lockage of about 200 feet,

with the same disadvantages of small cargoes and transhipments as by the Erie Canal route.

The mere question of increased distance, if it occurs on Lakes and navigable Rivers, where the cost of transportation is reduced to the lowest possible rates, is not of much consequence, so long as the time consumed in the passage is less than by the shorter routes.

If the length of an unbroken voyage is an important element in the cost of transportation or price of freight, there are other considerations still more important. Thus, a barrel of flour is transported from New York to Liverpool for 50 cents, but the freight from Buffalo to Boston *via* Erie and Oswego Canals is double that sum.

The question then is, will the products of the country about the upper Lakes, after having reached the lower end of Lake Erie, or being afloat on Lake Ontario, in large and heavily laden vessels, be transported to an eastern market retarded by two or three transhipments, and broken voyages, or will they continue undisturbed in the same vessels to the Ocean, or to the western terminus of your road, and thence be carried to the Ocean, without the delay and charges of the Canal routes.

A Committee of the New York Legislature on the subject of equalizing tolls on the Erie and Oswego Canals, state that, "There is no route so cheap to England from Ohio for flour as by the way of the St. Lawrence River," that "The St. Lawrence Canal, which passes the rapids of the St. Lawrence River is not needed for the down trade, but only for the up trade, unless the vessels carrying it are to go from ports on the Lakes to foreign countries, and will, when completed, have no effect on our commerce downward to Montreal. Already, steam vessels with cargoes have descended the rapids of the St. Lawrence. The St. Lawrence Canal facilitates the up commerce alone, and is not so expiditious and cheap as the channel of the river downwards; should flour from the United States be admitted through Canada to England, duty free, every barrel sent from the United States would go through the St. Lawrence, and would never seek our Canals at all." And the same

Committee further state, relative to the comparative cost of transporting a barrel of flour from Cleveland to Albany by the Erie and Oswego Canal routes, that " Tolls excluded, it was cheaper by three cents to send a barrel of flour by way of Buffalo, through the Erie Canal, than by the way of Oswego, through the Welland and Oswego Canal to Albany. Yet, by the advantages in tolls, the Oswego route was the cheapest by 3 cents seven mills and seven-tenths ; and it was so by the advantage in tolls alone. In mere freight, the Erie Canal in its whole length was cheapest."

The Ogdensburgh and Lake Champlain route to Boston may be said to come into competition with your road, and that its tendency will be to divert the Western trade from the St. Lawrence above Montreal.

It remains to be considered whether you will be able to compete successfully with this line.

The distance to the Seaboard by this route to Boston and the distance *via* the St. Lawrence and your road to the Seaboard at Portland, are very nearly the same.

By that route, the transportation will be for the whole distance 397 miles by Rail-ways, which are to be operated by six and perhaps seven different corporations, each having a separate organization and management.

The freight is landed on the west side of the City of Boston, much of which must be trucked across the town for shipment or storage at an expense for flour of 4 cents per barrel.

By the Montreal route, the vessels which bring cargoes from the upper Lakes will continue down the river, descending the rapids or passing through the canals, at their option to Montreal, a distance of about 120 miles, where cargoes will be transhipped and transported on a superior Rail-way of 275 miles in length, directly to vessels in the harbour of Portland.

As it regards the time of reaching the Seaboard by these routes, there will probably be but a trifling difference. If a bridge is not

constructed across the outlet of Lake Champlain, for the Ogdensburgh line, there would be another transhipment, or so much delay as to occasion an additional disadvantage.

With reference to the cost of transportation, there appears to be little doubt as to the superior economy of the Montreal route.

Vessels arriving at Ogdensburgh with full cargoes, may, in a few hours more, and with but a very trifling expense, descend the St. Lawrence to Montreal; and as the facilities for obtaining return cargoes from that place will be far greater than at Ogdensburgh, forwarders will probably find it greatly to their advantage for their vessels to go through to the former place rather than to discharge at Ogdensburgh.

But the amount of up freight will have a tendency, as before stated, to modify the prices of down freight, and the superior advantages of Montreal in this respect will hold out strong inducements to continue down the river to that point, at perhaps less proportional charges than to Ogdensburgh.

The cost of transporting flour from Montreal on the St. Lawrence and Atlantic Rail-road to Portland, has been placed at 45 cents per barrel.

If we make the same proportional charges on the Ogdensburgh line, the cost of transporting flour from that place to Boston will be 65 cents per barrel.

If it can be done for less than this sum on that line, it certainly can be reduced, at least proportionally on your road, where the facilities and capacity of transportation are greater and the first cost of the road much less. If we assume the low rates charged on the Western Rail-road, and apply it irrespective of any supposed advantage of grades and first cost of construction to these lines, the charge on the Ogdensburgh line will then be 59 cents per barrel.

Portland line 41 cents per barrel.

Difference 18 cents per barrel in favor of the Portland line.

It is quite certain that the additional cost of transportation of flour from Ogdensburgh to Montreal in vessels carrying large cargoes, and already loaded, will not cost 18 cents per barrel, or half that sum.

It appears then that the total distance is nearly the same on these routes, but that nearly one third of the whole distance on the Montreal route is by the cheapest mode of transportation now in use, and the remainder by a Rail-way of a favorable character in every respect, while the Ogdensburgh and Lake Champlain route is for the whole distance by Rail-way, and is under the separate management of six or seven corporations, adding to the time required for the passage, and materially increasing the cost of transportation.

In view of these circumstances, there appears to be little doubt but that flour may be transported on your road to the seaboard from 10 to 12 cents per barrel less than by the Ogdensburgh and Lake Champlain route. And there is as little doubt that flour may be transported from Ogdensburgh to Boston *via* Montreal and Portland, at less cost than by the Ogdensburg, Vermont, Central, and other Rail-ways to the same point; further, that there will be a material difference in the cost of transporting all descriptions of freight in either direction, in favor of your road and the St. Lawrence River.

With this general view of your road, and its advantages, we proceed to submit an estimate of the business which may be reasonably anticipated on its being completed, its connections with other works perfected, and the road in full and successful operation.

PROBABLE RECEIPTS OF THE ROAD.

400,000 Barrels Flour to the New England States, New Brunswick and Nova Scotia at 1s----	£20,000
400,000 Barrels Flour for shipment to Europe, West Indies, and South America at 1s----	20,000
Corn and other descriptions of Grain equal to 100,000 Barrels at 1s----------	5,000
40,000 Barrels Pork, Beef, &c. at 1s. 6d----	3,000
Through and Way Freight of all other descriptions equal to 80,000 Tons at 20s----------	80,000
Passengers, Through and Way, equal to 60,000 over the whole road at 15s----------	45,000
Mails----------	2,000
Total Receipts----------	£175,000
Deduct for expenses 50 per cent------	87,500
Net Revenue----------	£87,500

which is equal to 10½ per cent on £850,000, or if the final cost of the road should amount to £1,000,000, the net revenue is 8¾ per cent on that sum.

Comparing the above estimate of the business of your road, with that of the Western Rail-Road, Massachusetts, to which we have before referred, we find that the revenue is considerably below the actual average receipts of that road since the first year after it was opened to Albany, the revenue of which has more than doubled in five years, and that the net receipts of that road last year were nearly 100 per cent greater than the above estimated revenue of your road.

When it is known that the Western road has to contend with a direct and active competition, both summer and winter, and that its curvatures and grades are excessively heavy, on account of which the useful effect of locomotive engines is 33 per cent less than on your road, it would seem that the preceding estimate of revenue is an entirely safe one.

The construction of Rail-ways developes the resources, and adds greatly to the business of the country.

The number of passengers and amount of freight estimated as the probable business to be done on roads about to be constructed, are almost uniformly exceeded by the actual amount of business done, when brought into use.

The estimated number of passengers for the Boston and Worcester Road, before it was completed, was 23,500, and before the opening of the Norwich and Worcester and Western Roads which connect with it, they amounted to 78,000, and in 1847 to 548,000. The number of passengers estimated to pass over the Eastern Road was 121,700, in 1847 the actual number transported was 893,000. The estimated number for the Fitchburg Road was 71,790—there were transported the first half year, with only half that road in operation, nearly 10,000 more passengers than were estimated for the whole road the whole year, and in 1847 the number was 484,000. The passengers estimated to pass over the Boston and Lowell Road were 37,400, and the net receipts were estimated at $36,000, the former amounted in 1847 to 484,000, and the latter to $195,000. (Note C.)

There is scarcely a Rail-Road in the United States properly located which has not had an immense increase of business from year to year. (Note D.)

The increase in the gross receipts of nine Rail-Roads in Massachusetts from 1845 to 1847 inclusive, as deducted from the annual returns of the several corporations to the Legislature, is nearly one and a half millions of dollars, and six roads in the State of New York shew an increase of gross receipts in the same time of $781,048 dollars.

The benefits conferred on the Stockholders from the construction of a work of this importance, is a minor consideration, compared with the vast benefits to the whole country in increasing the value of lands, and adding largely to its wealth and population.

The increased valuation of property in Massachusetts since the introduction of Rail-ways within her borders, is beyond precedent, and the annual accumulation is estimated at nearly 20 millions of dollars.

The following Statement shews the valuation of real and personal estate in the City of Boston, at about the time the Rail-way system was commenced in that State, what it was previously to the opening of the Western Rail-Road, and what it is at the present time.

Real and Personal Estate in	1848	£40,590,100	Increase.	
" " "	1841	24,526,651	—£16,063,449	
" " "	1830	14,754,000	— 9,772,651	
Total increase since 1830				£25,836,100

The increased valuation from 1841 to 1848, seven years, is more than double the cost of all her Rail-ways.

The population within a period of 15 years has nearly doubled.

The assessed value of the real and personal estate of the State of New York in 1834 was £114,669,496, and in 1848 it was £162,904,898, shewing an increase in 14 years of £48,235,402, which is nearly four times the cost of all her canals and Rail-ways.

The population of that State in 1830 was 1,918,608, and in 1845 it was 2,604,495, shewing an increase of 685,882 in fifteen years.

That this vast increase of wealth and population in these States is to be attributed mainly to the construction of Rail-ways and Canals, there cannot be a doubt.

It appears from the immense expenditures made on Government Works, and the aid and encouragement extended to incorporated Companies by the several Legislatures of these States, that it is regarded as the sure means of developing the resources and wealth of the Country.

The State of Massachusetts has subscribed stock or loaned its Credit to different Rail-road Corporations to the amount of $6,240,000—and the State of New York has loaned her Credit to various Corporations to the amount of $5,345,000—(Note E.)

If we consider the immense local business which is immediately created on the opening of Rail-ways and Canals through the Country, and take an extended view of the vast and fertile regions of the West, and the amount of Merchandize which will eventually seek an eastern market, we shall at once see the impracticability of accommodating that trade with the present means of communication, and the certainty of success which will attend the opening of your line.

To pass the trade of the Erie Canal in 1847, the number of lockages made at a lock near Schinectady was 54,230 during the navigable season, and in the month of October 6,930 lockages, which, allowing for 31 days in the month and operating the lock, day and night, Sundays included, gives, as the time of making each lockage 6 $\frac{4}{10}$ minutes, which evidently shews that as regards the number of lockages, this was nearly or quite the capacity of the Canal.

By enlarging the vessels navigating the Canal, the tonnage, with the same number of lockages, will be increased, so also it may be increased by doubling the locks, but a greatly increased number of lockages, on certain portions of the Canal, would probably be impracticable on account of the difficulty of obtaining and passing the requisite supply of water.

The increased capacity which may yet be given the Erie Canal above its present trade is a mere trifle compared with the vast trade of the West, which will continue to accumulate till the States bordering on the Lakes and the Territory West to the regions of the Upper Mississipi shall become densely populated.

The total amount of freight which passed the New York Canals in 1847 was---------- ----------2,869,810 Tons
The amount in 1842 was----------1,236,931 do

Shewing an increase of tonnage-------- 1,632,879 do

Or nearly 150 per cent in the short space of five years.

The value of this merchandize in 1847 was 151½ millions of dollars. while that of 1842 was only 60 millions, giving an increase in the value of this commerce in five years of 91½ millions of dollars (Note F.)

With such an increase of trade, the time is near at hand when it will far exceed the utmost capacity of the Erie Canal, even when enlarged throughout its whole extent.

The astonishing increase of trade on the Western Lakes within a few years, is such as to render it difficult to assign any proper limits to its future advances.

In 1835, the State of Ohio was the only exporting State on the Lakes, and during that year there arrived at Buffalo 86000 barrels of flour, and 98000 bushels of wheat.

The following Statement shows the amount of the principal productions of the Western States which arrived at the same port in 1845 and 1847, and the increase.*

Year.	Flour. barrels.	Pork & Beef. barrels.	Staves. M.	Wheat. bushels.	Corn, Oats & Rye-bushels.	Butter. Kegs.
1847	1887000	80000	8800000	6489100	3379087	101584
1845	746750	57060		1170740	78470	19975
Increase.	1110250	22940		4718360	3300617	81605

The above is exclusive of the large amount of Lake Trade which went through the Welland Canal.

In 1837, the Wheat and Flour passing Lakes Erie and Ontario to be forwarded to market, through the Erie Canal, amounted to only about 35,000 tons, while in 1847 the amount was 486,000 tons.

By referring to the amount of shipping on the Lakes at various periods, its tonnage and value, and the value of the commerce, we

* Compiled from the Report of the Commisioner of Patents, to Congress, 1847.

may perhaps form a more just appreciation of its importance, and the astonishing increase of trade within a few years.

In 1825 there were but thirty or forty small craft and one steamboat of 350 tons burthen on Lake Erie, and the first steamboat passed through Lake Michigan in 1826 or 1827.

In 1845, there were on the Lakes, above Niagara Falls, 60 steam vessels, having an aggregate tonnage of 23,000 tons, and 320 brigs and schooners of 53,000 tons, the whole costing $4,600,000.*

The shipping of all the Lakes in 1846 amounted to 136,836 tons, and was valued at $6,000,000. The amount of merchandize transported that year was 3,861,088 tons, while that of 1841 was 2,071,802 tons, showing that the trade had nearly doubled in 5 years. The number of passengers transported in 1846 was 250,000, and the value of this business was estimated at $1,250,000.†

The value of Lake Commerce in 1847, according to the Report of the Hon. Washington Hunt, made to Congress, was over 141 millions of dollars, or only 13 millions less than the value of all the exports of the United States in 1848, and nearly double the value of all the products received at New Orleans in 1846 and 7 by the Mississippi river (Note G.)

In all the immense territory which surrounds the Great Lakes, and which now produce this surprising amount of commerce, there was in 1816 but one organized State, and the total population did not exceed 500,000 souls.

At the present time, there is a cluster of six large States about these waters, containing a population of between four and five millions of inhabitants.

Embracing the States and Territories whose trade will float over these Lakes to an Eastern market, we have an area of nearly 300,000 square miles, or an extent of territory three times as large as the Kingdom of Prussia, and nearly twice as large as France.

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* Letter on Lake Commerce, 1846, by James L. Barton, Esquire.

† Report to Congress of J. J. Abert, Col. Corps Top. Engineers, 1848.

Examine the position and advantages of this favored region, which is almost encircled by those great inland seas, possessing an exuberant soil, a genial climate, and all the elements of national greatness, —survey these magnificent Lakes, with their five thousand miles of coast, their numerous harbors, the flourishing towns and cities, which already stud their shores, and the thousands of miles of natural and artificial channels of communication, collecting the rich products of the soil from every point of the compass, and pouring its treasures into these great natural reservoirs,—trace that noble river, the St. Lawrence, which forms the outlet to the ocean for these illimitable waters, and which seem designed by nature as the great highway of nations,—consider the rapid progress of this country within a few years past in population, in improvements, in commerce and wealth,—and picture its state a few years hence, when these fertile plains will teem with an active and enterprising population, when rail-ways will spread a net work of iron lines over the whole length and breadth of the land, when the vast agricultural and mineral resources of the country shall be developed and the Western Lakes be covered with innumerable fleets, bearing these exhaustless products,—do all this, I say, and then estimate, if you can properly, the extent and value of the commerce of the mighty West.

There is one other consideration which I cannot omit to notice, notwithstanding the great and perhaps unreasonable length of this communication. It is this. By the completion of your road, an immense trade will be drawn down the St. Lawrence and through your Canals, which otherwise will pass through other channels.

As an enterprize which will largely increase the revenue of these works, the value of lands, public and private, and the wealth of the whole country, it cannot, I believe, be questioned that it is preeminently deserving of the favorable consideration and encouragement of Government.

You will, I trust, excuse the liberty I have taken in addressing to you these views, which I have been led to entertain of your great enterprize, and after the most careful examination and investigation of its merits in all its details, I feel the utmost confidence in stating

as my deliberate judgment, that if this undertaking is carried out on its original plan and principles, no work in this Province or the United States of a similar character, will exceed it in the magnitude and importance of its results.

With sentiments of great respect,

I have the honor to be

Sir,

Your obedient humble servant,

A. C. MORTON,
Civil Engineer.

APPENDIX.

NOTE A.

TABULAR STATEMENT of the Length, Cost, Receipts, Expenses and Net Income of the principal Rail-Roads in the State of Massachusetts for 1847.

NAME OF ROAD.	Length of Road in Miles.	Total cost of Road & Equipments—Pounds.	Number of Passengers carried.	Tons of Merchandize carried.	Income. Pounds.	Expenses. Pounds.	Net Income. Pounds.	Per cent. per annum on cost.	Per cent of Receipts for Expenses.
Boston and Lowell.....	25 3/4	489,179	484,683	281,441	112,139	63,352	48,787	10.	52.25
Boston and Maine.....	73	755,293	728,307	120,428	127,876	55,065	72,811	9.60	43.
Boston and Providence....	41	636,179	487,478	87,605	90,832	43,837	46,995	7.40	48.25
Boston and Worcester.....	44 1/2	1,028,402	598,305	283,718	180,542	95,490	35,046	8 25	52.67
Fitchburg	49 1/3	601,681	494,035	244,476	97,684	41,932	55,752	9.25	42.90
Eastern	38	734,301	892,896	41,047	106,210	40,021	66.189	9.	37.67
Western.....	156	2,192,368	388,111	274,691	331,334	169,173	162,161	7.40	51.
Nashua and Lowell.....	14 1/4	125,000	225,984	151,111	39,334	24,235	15,099	12.	61.60
Old Colony.....	37 1/4	409,158	389,994	42,707	42,788	21,755	21,033	5.	50.
New Bedford and Taunton.	20	120,970	77,936	19,352	34,720	23,690	11,030	9.12	68.
Connecticut River.....	36	292,308	237,215	44,480	30,988	17,225	13,763	6.33	44.80
Taunton Branch.....	11	75,935	108,539	30,461	28,477	21,423	7,054	9.30	75.
Nashua and Concord.....	35	260,679	203,505	103,371	72,557	44,113	28,444	11.	60.80
TOTAL.....	581 1/2	7,721,453	5,336,988	1,724,888	1,295,481	661,317	634,164	8.20	51.

NOTE B.

TABULAR STATEMENT of the Length, Cost, Receipts, Expenses and Net Income of the several Rail-Roads in the State of New York for 1845, 1846 and 1847.

NAMES OF ROADS.		Length in Miles.	Total Cost. Pounds.	Average Cost per Mile. Pounds.	Number of Passengers carried.	Receipts. Pounds.	Expenses Pounds.	Net Income. Pounds.	Per cent. per annum on cost.	Per cent. of Receipts for Expenses.
Utica and Shenectady	1845	78	547,376	7,017	161,656	102,768	36,889	65,879	12.	35.89
	1846		547,376	7,017	221,818	107,099	41,955	65,144	12.	39.00
	1847		708,315	9,081	266,534	174,678	58,561	116,117	16 40	33.50
Utica and Syracuse	1845	53	279,218	5,268	123,534	50,596	18,750	31,846	11 50	37.10
	1846		282,232	5,325	155,279	64,409	24,112	40,297	14 25	37.25
	1847		283,145	5,342	199,503	87,545	31,158	56,387	19.90	35 50
Auburn and Syracuse	1845	26	192,068	7,387	87,244	24,950	11,081	13,869	7.25	44.41
	1846		196,055	7,541	105,809	29,759	11,541	18,218	10 75	40 00
	1847		222,191	8,545	140,605	39,277	15,302	23,975	10.70	38 90
Auburn and Rochester	1845	78	458,011	5,872	119,760	59,765	24,246	35,519	7.75	40 56
	1846		466,261	5,980	142,255	72,588	27,587	45,001	9 25	38 00
	1847		521,949	6,692	189,345	98,942	38,653	60,289	11 50	39.00
Tonawanda	1845	43½	187,763	4,316	73,130	29,167	9,251	19,916	10.67	31.71
	1846		188,389	4,331	92,387	35,954	11,296	24,658	13.75	31.33
	1847		201,382	4,629	134,068	48,688	13,929	34,759	17.30	26.60
Attica and Buffalo	1845	31¼	85,500	2,736	71,847	17,574	7,743	9,831	11 50	44.06
	1846		88,702	2,838	87,633	21,624	8,391	13,233	17 25	39.25
	1847		121,886	3,900	130,799	30,952	12,250	18,702	15 80	39.50
TOTAL	1845	309¾	1,749,936	5,649	637,171	284,820	107,960	176,860	10.	37.08
	1846		1,769,015	5,711	805,181	331,433	125,882	206,551	11 6	37.68
	1847		2,058,898	6,647	1,060,854	480,082	169,853	310,229	15.	35.38

NOTE C.

Increase of Passengers by the establishment of Rail-ways.

" From Baron Charles Dupin's Report on the Paris and Orleans Rail-way :

" Experience has proved both in France and abroad, that in a short space of time the facility, expedition and economy afforded by Rail-ways more than doubles the number of passengers and the quantity of merchandize.

" In order ro support such statements we will quote the following facts relative to the Rail-ways of Belgium, England and Scotland, in positions of extreme difference, and giving rise to a variation in the returns which far exceeded all anticipation."

Comparison of the number of travellers conveyed daily throughout the whole or a portion of the line :

Rail-ways.	No. of Passengers before the establishment.	No. of Passengers after the establishment.
Manchester and Liverpool	400	1,620
Stockton and Darlington	130	630
Newcastle and Carlisle	90	500
Arbroath and Forfar	20	200
Brussells and Antwerp	200	3,000

Increase of the number of Passengers by the establishment of a Rail-way.

Liverpool and Manchester	300 per cent.
Sockton and Darlington	380 "
Newcastle and Carlisle	455 "
Arbroath and Forfar	900 "
Brussells and Antwerp	1,400 "

Thus even taking as a criterion, the road on which the proportional increase is least of all, we still find that the number of passengers will increase not only 100 but 300 per cent. The transport of merchandize will experience a similarly rapid increase.

Progress in the conveyance of merchandize by rail-way compared to that of passengers.

Year.	Passengers.	Tons.
1834	924,063	22,909
1836	1,248,552	161,501
1838	1,535,189	274,808

Thus while the number of passengers increased 60 per cent. in four years, in the same time the quantity of goods increased 1,100 per cent.

Extract from an Official Report on English Rail-ways, made to the French Government by Edward Teisserence, its agent, charged with the special duty of making a study of these Rail-ways.

" The Darlington Rail-way has produced by its low rates of pas-
" sage and freight, a complete revolution in the region of country
" which it traverses. It has increased the value of land 100 or
" 200 per cent. By these low rates the freight estimated at 80,000
" tons has been increased to 640,000 tons. The passengers esti-
" mated at 4,000 have been increased to 200,000."

The following extract on the influence of Rail-ways in developing there sources of a country, is taken from the second Report of the Irish Rail-way Commissioners.

" On the Newcastle and Carlisle road prior to the Rail-way, the
" whole number of persons the public coaches were licensed to
" carry in a week were 343, or both ways 686. Now the average
" daily number of passengers by Rail-way for the whole length, viz.
" $61\frac{8}{10}$ miles is 228, or 1,596 per week.

" The number of passengers on the Dundee and Newtyle line
" exceeds at this time 50,000 annually, the estimated number of
" persons who performed the same journey previous to the opening
" of the Rail-way having been 4,000.

" Previous to the opening of the Rail-way between Liverpool and
" Manchester, there were about 400 passengers per day or 146,000

" per year, travelling between those places by coaches, whereas " the present number by Rail-way alone exceeds 500,000.

" In foreign countries the results arising from the same cause are " equally if not more striking. The number of persons who usually " passed between Brussels and Antwerp was 75,000 in the year, " but since the Rail-road has been opened from the former place to " Malines, it has increased to 500,000, and since it was carried all " through to Antwerp, the number has exceeded a million. The " opening of a branch from Malines to Termonde appears to have " added 200,000 to the latter number, so that the passenger traffic " of that Rail-road superseding a road traffic of only 75,000 persons " now amount to 1,200,000.

" It is remarkable that on this as on most other Rail-roads, the " greatest number of passengers are those who travel short distances " being as two to one compared with those who go the whole dis " tance. This appears from a statement read by Mr. Loch, before " the Statistical Society of Manchester, showing that between April " 30th and August 15th, 1836, 122,417 persons travelled the whole " distance, and 244,834 short distances, chiefly to and from " Malines."

STATEMENT shewing the Increase of Passengers on varions Rail-ways in the United States.

NAME OF ROAD.	Year.	Number of Passengers.	Year.	Number of Passengers.	Increase.
Fitchburg	1845	196669	1847	494035	297366
Western	1842	190436	1847	388111	197675
Boston and Worcester	1843	262830	1847	598305	335475
Eastern	1842	431000	1847	892896	461896
Utica and Schenectady	1843	147868	1847	266534	118666
Utica and Syracuse	1843	114843	1847	199503	84660
Auburn and Syracuse	1843	83316	1847	140605	57289
Auburn and Rochester	1843	105190	1847	189345	84155
Tonawanda	1843	67604	1847	134068	66464
Attica and Buffalo	1843	68896	1847	130799	63903
Baltimore and Ohio	1843	149533	1847	288674	139141

NOTE D.

STATEMENT showing the Increase of Business on various Rail-roads in the United States.

Boston and Lowell, Net Revenue,	1836,	£22,450
" " "	1847,	48,789
		£26,337 Inc. in 11 years.
Boston and Worcester, Net Revenue.	1842,	£45,174
" " "	1847,	85,046
		£39,872 Inc. in 5 years.
Western, Net Revenue	1842,	£ 61,517
" "	1847,	162,161
		£100,644 Inc. in 5 years.
Eastern, Net Revenue	1842,	£37,532
" "	1847,	66,189
		£28,657 Inc. in 5 years.
Boston and Providence, Net Revenue,	1842,	£30,911
" " "	1847,	46,995
		£16,084 Inc. in 5 years.
Boston and Maine, Net Revenue	1842,	£19,150
" " "	1847,	72,811
		£53,661 Inc. in 5 years.
Nashua and Lowell, Net Revenue	1842,	£ 9,903
" " "	1847,	15,099
		£5,196 Inc. in 5 years.
New Bedford & Taunton, Net Revenue,	1842,	£ 8,105
" " "	1847,	11,030
		£2,925 Inc. in 5 years.
Utica and Schenectady, Net Revenue,	1837,	£ 48,198
" " "	1847,	116,117
		£67,919 Inc. in 10 years.

Utica and Syracuse, Net Revenue,...1843, £23,568
" " " ...1847, 56,387

£32,819 Inc. in 4 years.

Auburn and Rochester, Net Revenue..1843, £22,073
" " " ..1847, 60,289

£38,216 Inc. in 4 years.

Baltimore and Ohio, Net Revenue....1838, £ 23,411
" " " 1847, 127,777

£104,366 Inc. in 9 years.

Michigan Central, Gross Receipts to
May 31st.....1846, £69,369

Michigan Central, Gross Receipts to
May 31st.....1848, 90,009

£21,640 Inc. in 2 years.

Camden and Amboy, Net Revenue...1833, £ 45,250
" " " ...1839, 106,750

£61,500 Inc. in 6 years.

Georgia Rail-road, Net Revenue....1841, £31,684
" " " 1847, 62,692

£31,008 Inc. in 6 years.

Georgia Central, Net Revenue.....1843, £23,297
" " " 1847, 42,849

£19,652 Inc. in 4 years.

Concord Rail-Road, Net Revenue....1847, £28,444
" " " 1848, 32,634

£4,190 Inc. in 1 year.

Fitchburg Rail-road, Net Revenue...1845, £31,413
" " " ...1848, 57,717

£26,304 Inc. in 3 years.

Utica and Schenectady Rail-road, 78 miles long, cost 1836, £492,000
The Gross Receipts in the first 5½ years after it was opened were..... 504,994
The Net Revenue for the same time was..... 327,321

Utica and Syracuse Rail-road, 53 miles long, cost 1839 ... £228,597
The Gross Receipts in the first 7 years after it was opened were..... 312,203
The Net Revenue for the same time was..... 134,424

Camden and Amboy Rail-road, 98 miles long, (including branches,) cost.....£ 805,000
The Gross Receipts from this Road from 1833 to 1841, inclusive, 9 years, were..... 1,510,699
The Net Revenue for the same time was..... 786,964

NOTE E.

STATEMENT of the Amount of Aid extended to various Rail-Road Corporations by the State of Massachusetts, either by a Subscription of Stock, or Loan of its Credit.

					Dollars.
April, 1836, The State subscribed to the Stock of the Western Rail-road Company,					1,000,000
Feb. 1838, The State loaned its Credit to the same Co....					2,100,000
March, 1837,	Do.	do.	do.	do.	1,200,000
March, 1841,	Do.	do.	do.	do.	700,000
Total amount of Aid to the Western Rail-road,....					$5,000,000

March, 1837, Loaned to the Eastern Rail-road Company,				500,000
April, 1838,	Do.	do.	do.	90,000
March, 1837,	Do.	Norwich and Worcester	do.	400,000
April, 1837,	Do.	Andover and Haverhill	do.	100,000
— 1838,	Do.	Nashua and Lowell,	do.	50,000
— 1839,	Do.	Boston and Maine,	do.	100,000
Total amount of Aid granted by the State of Massachesetts to different Rail-road Corporations,.....				$6,240,000

STATEMENT of the amount for which the State of New York loaned its Credit, to aid in the construction of Rail-ways, &c.

To the New York and Erie Rail-road Company,		.....	$3,000,000
"	Canajoharie	do.	300,000
"	Hudson and Berkshire	do.	150,000
"	Ithaca and Oswego	do.	315,700
"	Auburn and Syracuse	do.	200,000
"	Auburn and Rochester	do.	200,000
"	Long Island	do.	100,000
"	Tonawanda	do.	100,000
"	Schenectady and Troy	do.	100,000
"	Delaware and Hudson Canal Company,	.....	800,000
"	Tioga Coal, Iron, Mining and Manufacturing Co...		70,000
"	Neversink Navigation Company,.....		10,000
Total Amount of Aid granted by the State of New York to various Corporations,.....			$5,345,700

NOTE F.

STATEMENT of Tonnage ascending and descending, and the Total of both; the Value of ascending and also of descending Freight, and the Total of both; and the Tolls from 1842 to 1847, inclusive, on the New York Canals.

Year.	Tons of up Freight.	Value of up Freight. Pounds.	Tons of down Freight.	Value of down Freight. Pounds.	Total value of both. Pounds.	Tolls. Pounds.
1842	570305	9316399	666626	5687753	15004152	437299
1843	676578	11955875	836861	7113352	19069227	520397
1844	797492	14184496	1019094	8545792	22730288	611593
1845	780068	13775231	1204943	11363080	25138311	661545
1846	906343	16126713	1362319	12776314	28903027	689026
1847	1125527	19617753	1744283	18273103	37890856	908845
TOTAL,	4856313	84976467	6834126	63759394	148735861	3828705

NOTE G.

Extract from the Report of the Canal Commissioners, 1848.

STATE OF NEW YORK.

The following Statements are presented to show the comparative value of business upon the Canals of this State. Those relating to the Lakes and New Orleans are made up from the Report of Honorable Washington Hunt, made to Congress.

The total value of Imports, exclusive of Specie, into the United States for the year ending 30th June, 1848, was,..... $154,977,876

The Exports, Exclusive of Specie, for the same period were, of domestic productions,..... $132,704,121

Add value of Foreign Imports which were afterwards exported, ... 21,128,010

$154,032,131

The total value of all articles transported on the Canals in 1847, was,..... $151,563,428

The value of the American Lake Commerce for the same period was as follows:

	Imports.	*Exports.*	*Total of both.*	
Lake Ontario,	9,688,485	11,627,770	21,316,255	
Lake Erie,...	51,450,975	58,147,058	109,598,033	
Upper Lakes,.	5,087,158	5,309,105	10,396,263	
	66,226,618	75,083,933	141,310,551	$141,310,551

The value of Western Products received at New Orleans, for 1846 and 1847, was,..... $84,912,810

NOTE H.

TABLES showing the effect of Internal Improvements on the value of Property in the City of New-York.

TABLE 1st.—Chronological Table of the Assessed Value of Real and Personal Estate in the City of New York, during the Three Commercial Periods.

First Period—From 1815, to the completion of the Erie Canal.

Year.	Assessed Valuation.	Year.	Assessed Valuation.
1815.....	£20,409,010	1820.....	£17,384,938
1816.....	20,518,550	1821.....	17,071,268
1817.....	19,723,930	1822.....	17,822,286
1818.....	20,061,273	1823.....	17,735,205
1819.....	19,778,265	1824.....	20,768,919

Second Period—From the opening of the Erie Canal, to 1832.

1825.....	£25,290,011	1829.....	£28,131,504
1826.....	26,869,445	1830.....	31,322,129
1827.....	28,052,982	1831.....	34,820,056
1828.....	28,504,883	1832.....	36,575,654

Third Period—From 1833 to 1840.

1833.....	£41,623,797	1837.....	£65,936,837
1834.....	46,637,128	1838.....	66,038,235
1835.....	54,680,926	1839.....	66,720,607
1836.....	77,375,230	1840.....	63,033,879

During the latter period, namely, since 1832, about 470 miles of Rail-road have been completed and put in operation in the State of New York, besides about 2500 miles of Rail-road in other States. Thus it will appear that since the introduction of the *Rail-road system* the value of Real and Personal Property in the City of New York, have increased over *twenty-five millions of pounds.*

TABLE 2d.—Chronological Table of the Assessed Value of Real Estate only in the City of New York for a series of years.

Year.	Value of Real Estate.	Year.	Value of Real Estate.
1820.....	£13,015,714	1833.....	£28,531,142
1823.....	12,546,057	1834.....	30,812,320
1825.....	14,606,349	1836.....	58,435,576
1828.....	19,284,970	1839.....	49,235,033
1831.....	23,929,121	1840.....	46,780,429

Increase of value of Real Estate in New York since 1831, almost 23 millions of pounds.

Assessed Value of Personal Estate in		1840,	£16,253,450
Do.	do.	do.	1833, 13,091,744
Increase.....			£3,161,706

NOTE I.

TABULAR Statement of the Length and Cost of the Rail-ways from Albany to the Falls of Niagara, and Net Income in 1848, as compiled from the Official Returns made to the State Engineer and Surveyor, January 20th, 1849.

NAME OF RAIL-ROAD.	Length of Road in Miles.	Total Cost.	Average Cost per Mile.	Net Revenue per cent. on Cost.
		DOLLARS.	DOLLARS.	
Albany and Schenectady	16 91/100	1,606,196	94,985	6 2/100
Utica and Schenectady	78	3,227,946	41,384	16 4/100
Syracuse and Utica	52 80/100	1,968,036	37,273	13 1/100
Auburn and Syracuse	26	1,125,886	43,303	9 1/100
Auburn and Rochester	78	2,644,520	33,904	10
Tonawanda	43½	974,865	22,410	18 2/100
Attica and Buffalo	31½	821,313	26,073	10 3/100
Buffalo and Niagara Falls	22	250,396	11,381	14 2/100
	348 71/100		*Avrg.*	12 2/100

RECEIPTS OF BREAD-STUFFS AT BOSTON.

	Flour, Bbls.	*Corn, Bush.*	*Oats, Bush.*	*Rye, Bush.*	*Shorts, Bush.*
1847 —	1,027,719	2,584,528	521,738	50,256	83,626
1848 —	935,578	3,338,293	384,368	65,189	48,988

FLOUR RECEIVED AT BOSTON FROM THE WESTERN RAIL-ROAD.

1847 — 514,676 *Bbls.* 1848 — 364,372 *Bbls.*

(Exclusive of the quantities left at the several Towns between Albany and Boston.)

Official value of the Property which reached the Hudson by Canal.

1847 — $73,092,414 1848 — $50,969,461.

Official value of Property forwarded from the Hudson by Canal, westward.

1847 — $74,352,812 1848 — $76,760,766.

Rail-roads opened in Massachussetts in the year ending 30th January, 1849, 515 miles; previously, 683 miles. — Total opened, 1198.

MAP

SHEWING THE ROUTE OF

THE

St LAWRENCE and ATLANTIC

RAILWAY

AND OTHER MAIN LINES TO THE

WEST

Railways Completed
" Projected.
Canals.